

```
In [1]: import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
df= pd.read_csv("/home/student/Desktop/Boston.csv")
df
```

```
Out[1]:
```

	Unnamed: 0	crim	zn	indus	chas	nox	rm	age	dis	rad	tax	ptratio	b
0	1	0.00632	18.0	2.31	0	0.538	6.575	65.2	4.0900	1	296	15.3	39
1	2	0.02731	0.0	7.07	0	0.469	6.421	78.9	4.9671	2	242	17.8	39
2	3	0.02729	0.0	7.07	0	0.469	7.185	61.1	4.9671	2	242	17.8	39
3	4	0.03237	0.0	2.18	0	0.458	6.998	45.8	6.0622	3	222	18.7	39
4	5	0.06905	0.0	2.18	0	0.458	7.147	54.2	6.0622	3	222	18.7	39
...
501	502	0.06263	0.0	11.93	0	0.573	6.593	69.1	2.4786	1	273	21.0	39
502	503	0.04527	0.0	11.93	0	0.573	6.120	76.7	2.2875	1	273	21.0	39
503	504	0.06076	0.0	11.93	0	0.573	6.976	91.0	2.1675	1	273	21.0	39
504	505	0.10959	0.0	11.93	0	0.573	6.794	89.3	2.3889	1	273	21.0	39
505	506	0.04741	0.0	11.93	0	0.573	6.030	80.8	2.5050	1	273	21.0	39

506 rows × 15 columns

```
In [16... x=np.array([95,85,80,70,60])
y=np.array([85,95,70,65,70])
model= np.polyfit(x, y, 1)
model
```

```
Out[16]: array([ 0.64383562, 26.78082192])
```

```
In [17... predict = np.polyld(model)
predict(65)
```

```
Out[17]: 68.63013698630137
```

```
In [18... y_pred=predict(x)
y_pred
```

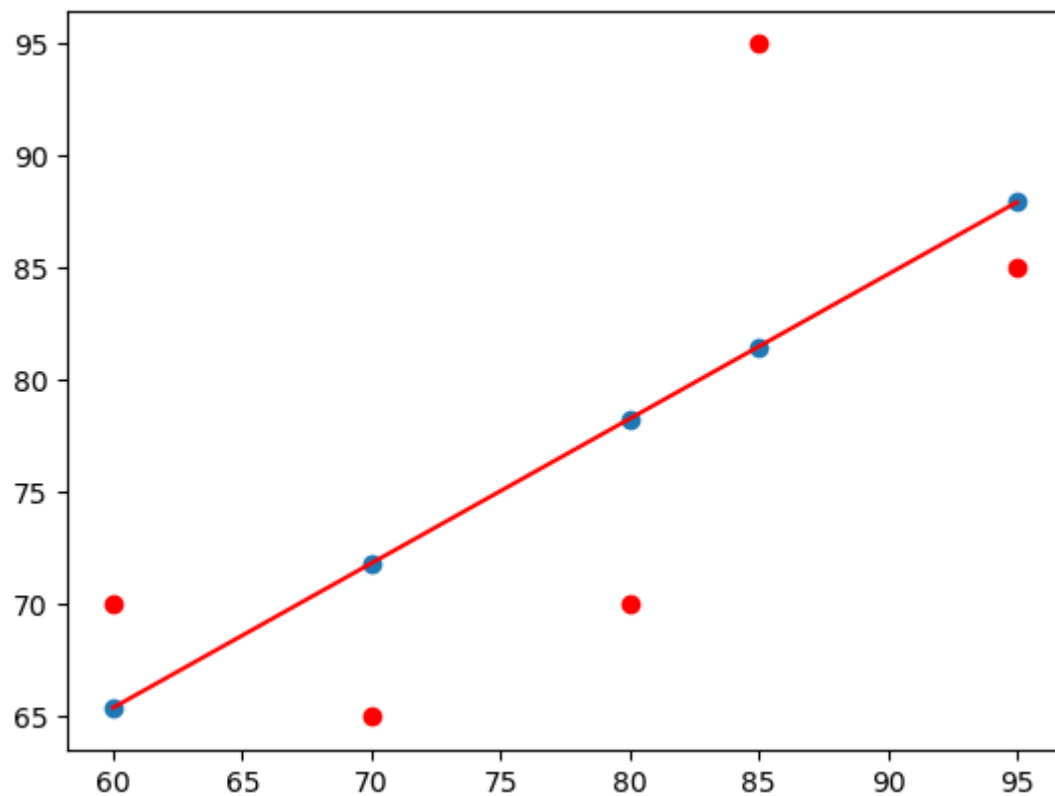
```
Out[18]: array([87.94520548, 81.50684932, 78.28767123, 71.84931507, 65.4109589
])
```

```
In [19... from sklearn.metrics import r2_score
r2_score(y, y_pred)
```

```
Out[19]: 0.4803218090889326
```

```
In [20... y_line = model[1] + model[0]* x
plt.plot(x, y_line, c = 'r')
plt.scatter(x, y_pred)
plt.scatter(x,y,c='r')
```

Out[20]: <matplotlib.collections.PathCollection at 0x7effa4c160e0>



```
In [4]: df.isnull().sum()
```

```
Out[4]: Unnamed: 0      0
      crim      0
      zn      0
      indus      0
      chas      0
      nox      0
      rm      0
      age      0
      dis      0
      rad      0
      tax      0
      ptratio      0
      black      0
      lstat      0
      medv      0
      dtype: int64
```

```
In [5]: x=df.drop(['medv'],axis=1)
      y=df['medv']
```

```
In [7]: from sklearn.model_selection import train_test_split
      xtrain,xtest,ytrain,ytest=train_test_split(x,y,test_size=0.2,random_sta
```

```
In [8]: import sklearn
      from sklearn.linear_model import LinearRegression
      lm=LinearRegression()
      model=lm.fit(xtrain,ytrain)
```

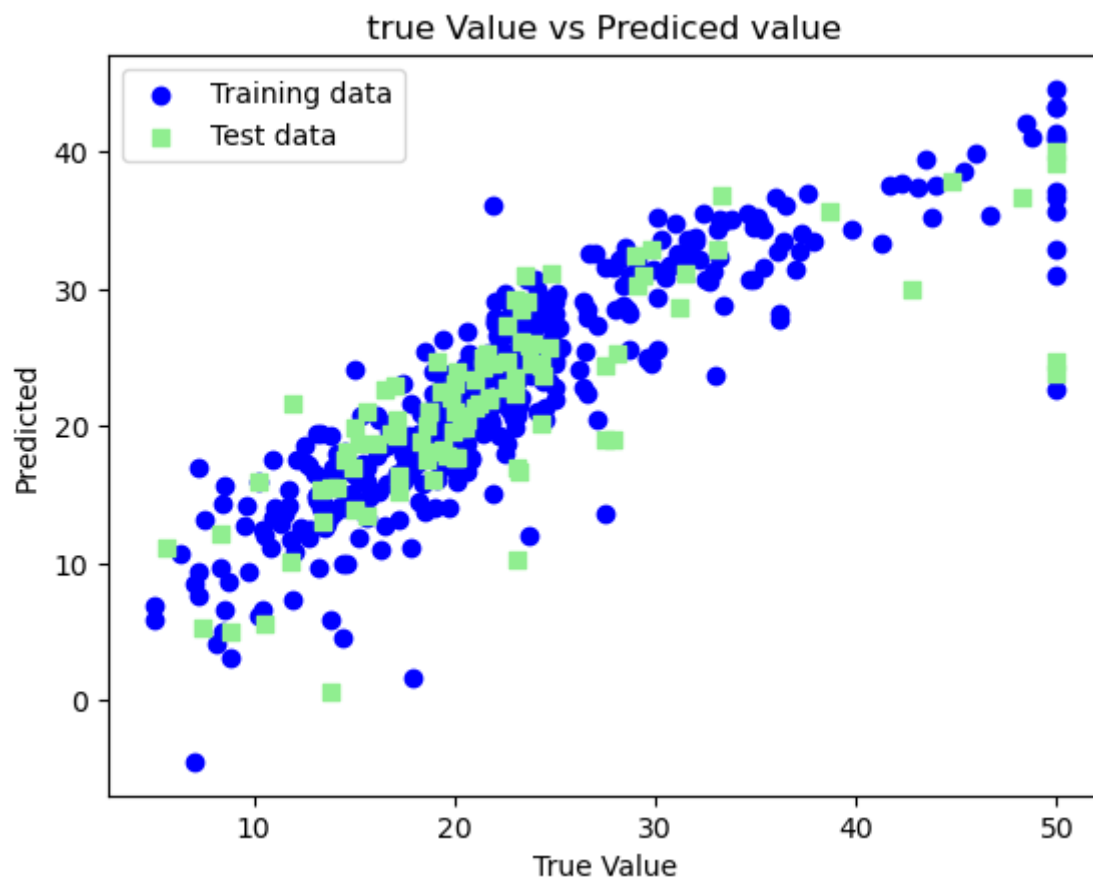
```
In [10... ytrain_pred=lm.predict(xtrain)
ytest_pred=lm.predict(xtest)
df=pd.DataFrame(ytrain_pred,ytrain)
df=pd.DataFrame(ytest_pred,ytest)
```

```
In [11... from sklearn.metrics import mean_squared_error, r2_score
mse=mean_squared_error(ytest,ytest_pred)
print(mse)
mse=mean_squared_error(ytrain_pred,ytrain)
print(mse)
```

```
33.266961459239134
```

```
19.302216223048
```

```
In [15... plt.scatter(ytrain,ytrain_pred,c='blue',marker='o',label="Training data
plt.scatter(ytest,ytest_pred,c='lightgreen',marker='s',label="Test data
plt.xlabel('True Value')
plt.ylabel('Predicted')
plt.title("true Value vs Prediced value")
plt.legend(loc='upper left')
plt.plot()
plt.show()
```



```
In [ ]:
```